

TWO NEW *HIRTUDISCUS* SPECIES FROM COLOMBIA
(GASTROPODA: SCOLODONTIDAE)

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ABSTRACT

Two new *Hirtudiscus* species are described from Colombia. *Hirtudiscus triserialis* n. sp. from the Departamento Cundinamarca is characterized by a large shell with three rows of up to 1 mm long hairs at the periphery and a distinctly sunken spire. *Hirtudiscus antiochiensis* n. sp. from the Departamento Antioquia is characterized by a moderately large shell with moderately dense growth striae and hairs up to 0.5 mm long.

Key words: *Hirtudiscus*, Scolodontidae, systematics, Colombia.

INTRODUCTION

Hylton Scott (1973) described the genus *Hirtudiscus* and classified it with the Endodontidae Pilsbry, 1895 (Punctoidea), on the basis of a single shell from the Cordillera Oriental in Colombia. Recently, Hausdorf (2003) examined the anatomy of a species of this genus and showed that it belongs to the Scolodontidae H. B. Baker, 1925 (= *Systrophidae* Thiele, 1926), and is closely related to *Drepanostomella* Bourguignat, 1889, from which it differs in the presence of hairs, an aulacopod foot, and the vaginal appendage (anatomical data for *Drepanostomella*: Ramírez, 1993). Hausdorf (2003) described three new *Hirtudiscus* species from the Cordillera Oriental in the Departamentos Cundinamarca and Boyacá and the Distrito Especial. In the following account, two new species are described from the Departamentos Cundinamarca and Antioquia.

MATERIALS AND METHODS

Radulae were prepared by dissolving the dissected buccal mass in 5% potassium hydroxide for several hours. Then they were cleaned in an ultrasonic cleaner for 10 s and washed with distilled water. The cleaned radula was mounted on a small piece of coverslip in water and allowed to dry directly onto the glass. The coverslip was fixed to a SEM stub using double-sided tape and sputtered with gold in a Sputter Coater (GEA004S). The

radulae were examined in a Leo 1525 scanning electron microscope.

The counting of the shell whorls (exactness 0.25) follows Kerney & Cameron (1979: 13). Shells were photographed without coating in a variable pressure scanning electron microscope (Leo 1455VP). The terms proximal and distal refer to the position in relation to the gonad.

The material on which this study is based is kept in the collection of the Universidad Militar Nueva Granada, Santafé de Bogotá (UMNG-MT), and the Zoologisches Museum der Universität Hamburg (ZMH).

Additional abbreviations: D = shell diameter; D3 = shell diameter at 3 whorls; H = shell height; leg. = collected by.

SYSTEMATICS

Scolodontidae H. B. Baker, 1925

Hirtudiscus Hylton Scott, 1973

Hirtudiscus Hylton Scott, 1973: 128. Type species (by original designation): *Hirtudiscus hirtus* Hylton Scott, 1973.

Hirtudiscus triserialis n. sp.
Figures 1, 3, 4, 7–10

Type Material

Holotype: Colombia, Departamento Cundinamarca: Parque Natural Chicaque near

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Soacha, Andean forest near Cascada, 2,400 m altitude, 04°41'31"N, 74°15'08"W (ZMH 37575, leg. C. I. Medina 19.10.2004, measurements: D = 11.5 mm, H = 4.3 mm).

Paratypes: Colombia, Departamento Cundinamarca: Parque Natural Chicaque near Soacha, Andean forest near river, 2,320 m altitude, 04°41'13"N, 74°15'37"W (UMNG-MT 301/1); Parque Natural Chicaque near Soacha, Andean forest near Cascada, 2,400 m altitude, 04°41'31"N, 74°15'08"W (UMNG-MT 302/12; ZMH 37576/4).

Type Locality

Colombia, Departamento Cundinamarca: Parque Natural Chicaque near Soacha, Andean forest near Cascada, 2,400 m altitude, 04°41'31"N, 74°15'08"W.

Diagnosis

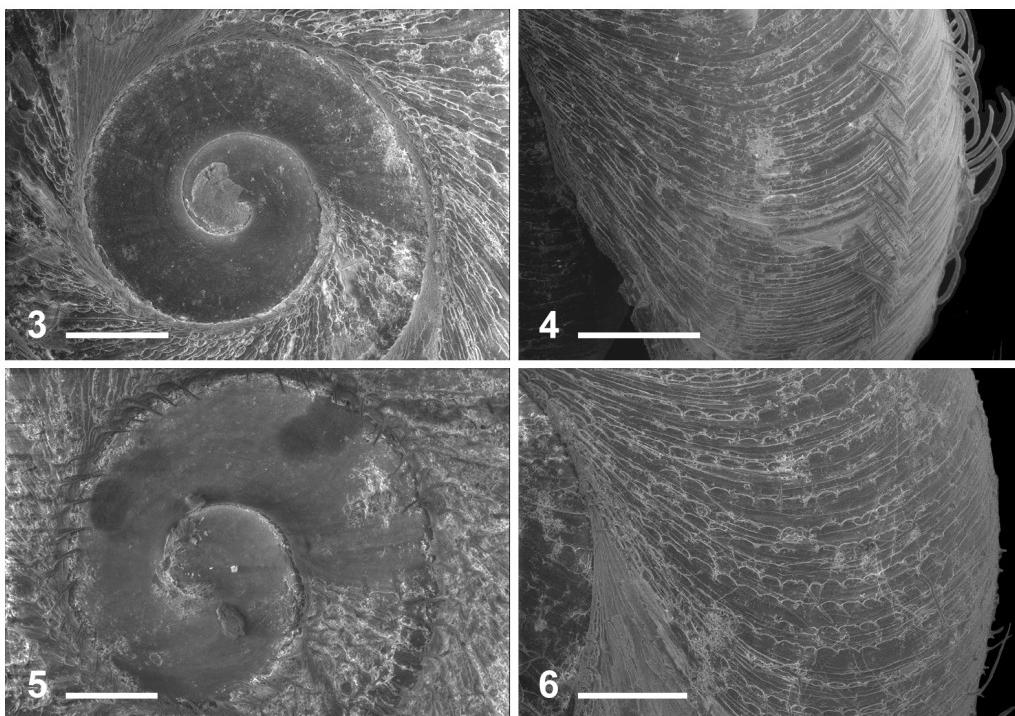
Hirtudiscus triserialis is characterized by a large shell (diameter 9.3–11.9 mm) with three rows of long hairs (up to 1 mm long) at the periphery and a distinctly sunken spire. Its genitalia differ from those of *H. comatus* Hausdorf, 2003, the only other anatomically known *Hirtudiscus* species, in the longer penis, the subapical insertion of the vas deferens on the epiphallus, and the globular swelling at the base of the peduncle of the bursa copulatrix.

Description

Shell (Figs. 1, 3, 4) discoidal; spire distinctly sunken; with 3.5–3.75 convex whorls; protoconch with indistinct spiral striae; teleoconch



FIGS. 1, 2. *Hirtudiscus* spp. Shells. FIG. 1. *Hirtudiscus triserialis* n. sp., Colombia, Departamento Cundinamarca: Parque Natural Chicaque, near Cascada (Holotype ZMH 37575). Scale bar = 1 mm; FIG. 2. *Hirtudiscus antioquiensis* n. sp. Colombia, Departamento Antioquia: La Ceja, Finca Guaycoral (Holotype ZMH 37577). Scale bar = 1 mm.



FIGS. 3–6. *Hirtudiscus* spp. Sculpture. FIGS. 3, 4. *Hirtudiscus triserialis* n. sp., Colombia, Departamento Cundinamarca: Parque Natural Chicaque, near Cascada (Paratype ZMH 37576); FIG. 3. Protoconch. Scale bar = 0.5 mm; FIG. 4. Shell sculpture on body whorl. Scale bar = 1 mm; FIGS. 5, 6. *Hirtudiscus antioquiensis* n. sp. Colombia, Departamento Antioquia: La Ceja, Finca Guaycoral (Holotype ZMH 37577); FIG. 5. Protoconch. Scale bar = 0.2 mm; FIG. 6. Shell sculpture on body whorl. Scale bar = 0.5 mm.

with three rows of long hairs (up to 1.0 mm) at, above and below the periphery, at the upper side there are several additional spiral rows of short extensions of the growth striae, of which those close to suture form short hairs, at the bottom side there are also a few spiral rows of short hairs close to suture; brownish-corneous; body whorl rounded; aperture oblique oval; upper insertion of the peristome not descending towards aperture, strongly bent backwards and, close to suture, abruptly bent downwards; thus, suture deeply impressed; peristome sharp, neither expanded nor thickened; umbilicus very wide, taking about 37–41% of the shell diameter.

Measurements. Chicaque ($n = 10$): D: 9.3–11.9 mm, $\varnothing = 11.0 \pm 0.7$ mm; D3: 7.4–7.8 mm, $\varnothing = 7.7 \pm 0.1$ mm; H: 3.5–4.6 mm, $\varnothing = 4.1 \pm 0.3$ mm; D/H: 2.46–2.89, $\varnothing = 2.69 \pm 0.14$.

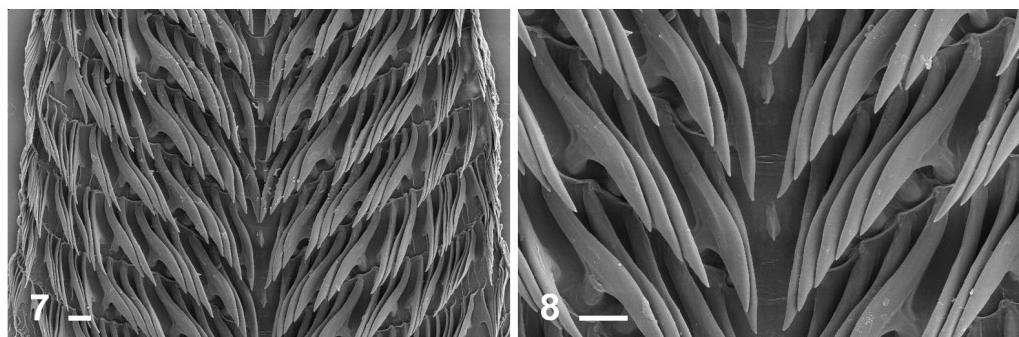
Anatomy (Figs. 7–10). Two specimens (ZMH 37576) were examined. The animal is yellowish. The foot is aulacopod. There is no distinct

caudal pit or caudal horn at the tail, which is also not distinctly truncated. The sole is not distinctly divided. There are no distinct lappets at the mantle collar.

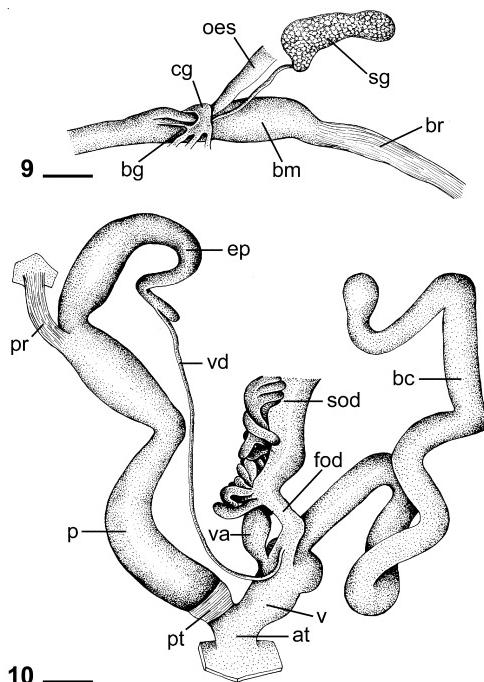
The buccal mass (Fig. 9) is extraordinarily elongated. The oesophagus and the salivary glands insert at about one-third of the length of the buccal mass. The tongue-shaped salivary glands are about half as long as the buccal mass. No jaw was found. The odontophore is restricted to the posterior third of the buccal mass.

The radula (Fig. 7) is long and narrow, with minute, narrow central teeth (Fig. 8) and 24 or 25 dagger-like lateral teeth on each side in each V-shaped row. The slightly curved cusps of the lateral teeth point toward the centre and are connected by an extension to the basal plates which point away from the centre. First lateral tooth is about as large as the adjacent laterals.

Genitalia (Fig. 10). The penis is long. Its middle section is slightly constricted. There is



FIGS. 7, 8. *Hirtudiscus triserialis* n. sp., Colombia, Departamento Cundinamarca: Parque Natural Chicaque, near Cascada (Paratype ZMH 37576). FIG. 7. Radula. Scale bar = 20 µm; FIG. 8. Central part of the radula with central teeth and first lateral teeth. Scale bar = 20 µm.



FIGS. 9, 10. *Hirtudiscus triserialis* n. sp. Colombia, Departamento Cundinamarca: Parque Natural Chicaque, near Cascada (Paratype ZMH 37576). Scale bar = 1 mm. FIG. 9. Buccal mass; FIG. 10. Genitalia. Abbreviations: at, atrium; bc, bursa copulatrix; bg, buccal ganglion; bm, buccal mass; br, buccal retractor; cg, cerebral ganglion; ep, epiphallus; fod, free oviduct; p, penis; pr, penial retractor; pt, penial tunica; oes, oesophagus; sg, salivary gland; sod, spermoviduct; v, vagina; va, vaginal appendage; vd, vas deferens.

a short penial tunica around the base of the penis. There is a large, wrinkled fold inside the penis. The wall of the penis is covered with numerous papillae with recurved, corneous hooks. The penis retractor inserts near the proximal end of the penis and on the diaphragm. The long epiphallus is distally broad and tapers towards its proximal end. The thin vas deferens inserts subapically on the epiphallus; it does not run through the penial tunica. The vagina is short. There is a club-shaped appendage at the vagina. There is a globular swelling at the base of the very long peduncle of the bursa copulatrix. The small bursa of bursa copulatrix reaches the digestive gland. The free oviduct is very short. The albumen gland is small. The right ommatophoral retractor runs between penis and vagina. In the second examined specimen, there are nine differently developed eggs with embryos in the spermoviduct. The distal genitalia, especially the male copulatory organs, are reduced compared with the specimen without eggs in the spermoviduct and appear as in subadult specimens.

Distribution

Hirtudiscus triserialis is known only from Andean forests at 2,300–2,400 m altitude in the Parque Natural Chicaque near Soacha in the Departamento Cundinamarca, Colombia.

Etymology

The specific epithet refers to the three rows of long hairs at the periphery of the shell (lat. *triserialis* = tree-rowed).

***Hirtudiscus antioquiensis* n. sp.**

Figures 2, 5, 6

Type Material

Holotype: Colombia, Departamento Antioquia: La Ceja, Finca Guaycoral, Andean forest, 2,720 m altitude, 06°05'20"N, 75°23'35"W (ZMH 37577, leg. C. I. Medina, 05.12.2001, measurements: D = 5.7 mm, H = 2.4 mm).

Paratypes: Colombia, Departamento Antioquia: La Ceja, Finca Guaycoral, Andean forest, 2,720 m altitude, 06°05'20"N 75°23'35"W (UMNG-MT 303/4; ZMH 37578/1); La Ceja, Finca Guaycoral, Andean forest, 2700 m altitude, 06°05'21"N, 75°23'37"W (UMNG-MT 304/2).

Type Locality

Colombia, Departamento Antioquia: La Ceja, Finca Guaycoral, Andean forest, 2,720 m altitude, 06°05'20"N, 75°23'35"W.

Diagnosis

Hirtudiscus antioquiensis is characterized by a moderately large shell (diameter 5.2–6.0 mm) with moderately dense growth striae and hairs up to 0.5 mm long.

Description

Shell (Figs. 2, 5, 6) discoidal; spire sunken; with 3.25–3.5 convex whorls; protoconch with indistinct spiral striae; teleoconch with moderately dense, fine growth striae carrying up to 0.5 mm long hairs in spiral rows; brownish-corneus; body whorl rounded; aperture almost circular; upper insertion of peristome not descending towards aperture, strongly bent backwards and, close to suture, abruptly bent downwards; thus, suture deeply impressed; peristome sharp, neither expanded nor thickened; umbilicus very wide, taking about 37–44% of shell diameter.

Measurements. La Ceja, Finca Guaycoral (n = 6): D: 5.2–6.0 mm, $\varnothing = 5.8 \pm 0.3$ mm; D3 = 4.0–5.2 mm, $\varnothing = 4.6 \pm 0.4$ mm; H: 2.1–2.6 mm, $\varnothing = 2.4 \pm 0.2$ mm; D/H: 2.31–2.52, $\varnothing = 2.41 \pm 0.08$.

Remarks

Hirtudiscus antioquiensis differs from ***H. triserialis*** in the smaller shell and the lack of

the three rows of very long hairs. However, its hairs are longer than those of the other known *Hirtudiscus* species. Moreover, it differs from *H. comatus* Hausdorf, 2003, in the more rapidly increasing whorls (in *H. comatus* the spire takes 45–56% of the shell diameter, in ***H. antioquiensis*** 31–39%; D3 in *H. comatus* 3.1–3.8 mm, in ***H. antioquiensis*** 4.0–5.2 mm), from *H. boyacensis* Hausdorf, 2003, and *H. curei* Hausdorf, 2003, in the larger shell with a sunken spire and less dense growth striae with hairs and from *H. hirtus* Hylton Scott, 1973, in the lack of distinct spiral striae on the protoconch and also in the larger shell with less dense growth striae with hairs.

Distribution

Hirtudiscus antioquiensis is known only from an Andean forest at 2,700 m altitude near La Ceja in the Departamento Antioquia, Colombia.

Etymology

The specific epithet refers to the occurrence of the species in the Colombian Departamento Antioquia (*antioquiensis* used as an adjective).

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LITERATURE CITED

- HAUSDORF, B., 2003, Systematic position and taxonomy of the genus *Hirtudiscus* from Colombia (Gastropoda: Scolodontidae). *Journal of Molluscan Studies*, 69: 179–186.
 HYLTON SCOTT, M. I., 1973, Endodontidos neotropicales V (Gastropoda Pulmonata). *Neotropica*, 19: 126–131.
 KERNEY, M. P. & R. A. D. CAMERON, 1979, *A field guide to the Land snails of Britain and North-west Europe*. Collins, London. 288 pp., 24 pl.
 RAMIREZ, R. L., 1993, *A generic analysis of the family Systrophiidae (Mollusca: Gastropoda): taxonomy, phylogeny and biogeography*. Unpublished M. A. Thesis, University of Kansas. xiii + 218 pp.